

SPECIFICATIONS

SS-420NH-V300A

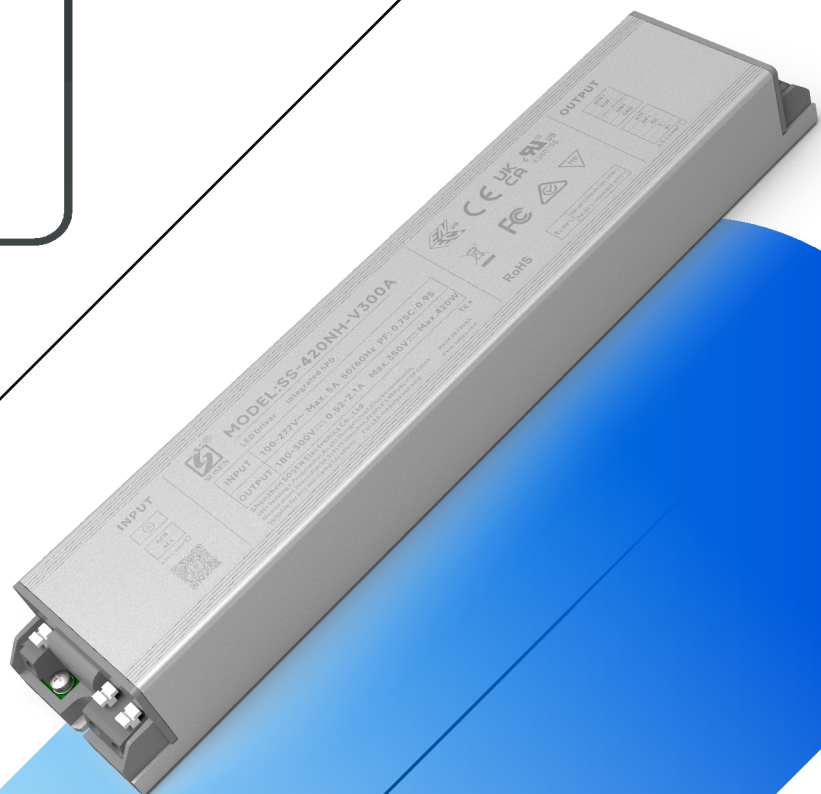
CC DRIVER

Model: SS-420NH-V300A

Power: 420W

Rev.: V00

Release date: 2025-09-26



SS-420NH-V300A Series LED Driver

Features

- Efficiency up to 97%
- Isolated dimming: 0-10V, PWM, Resistor
- Optional aux: 12V/0.2A
- Time-controlled programmable
- Standby Power<0.5W
- Protections: SCP/OTP/OVP/UVP
- Compatible with intelligent emergency controls
- Wide output voltage range
- NTC, Optical, Dial Power Range Programmable
- Surge protection: CM: 6kV,DM: 6kV
- Long lifetime
- Warranty: 5 years



RoHS



Description

SS-420NH-V300A series are 420W non-isolated constant current LED Driver with 90-305VAC. It has DIM to Off, high efficiency, isolated auxiliary power supply, Compatible with intelligent emergency controls, compact housing, fully potted, high reliability, high cost performance and other advantages.

Applications:

Shoobox Light, Linear high bay light, Flood lighting, Wall lamp

Model List:

Model	AC Input Range	Max. Pout	Vout Range	Recommended Voltage	Iout	Default Current	THD (Typ.)	PF (Typ.)	Eff. (Typ.)	Max.Tc
SS-420NH-V300A	90-305Vac	420W	180-300V	260V-300V	0.525-2.1A	1.4A	8%	0.97	97%	90°C

Note:

1.Default Tested: at 220Vac, full load, Ta 25°C.

2.The performance of the LED Driver can be guaranteed within the full power Vo range.The voltage lower than full power Vo range, it is need to test the performance with the LED module.

SS-420NH-V300A Series LED Driver

“A” Means Additional Function

"A"	AUX 12V suffix:H)	Dimming off 0-10V/PWM/Resistor	adjust power (Single DIP)	Photosensitive control	NTC	Remark
A	✓	✓	✓	✓	✓	

Input Characteristics:

Parameter	Min.	Typ.	Max.	Remark
Rated AC Input Range	100Vac		200Vac	≤Ta: 50°C (conditioned use) Reduction of 108V
	200Vac		277Vac	<Ta:55°C (conditioned use)
AC Input Range	90Vac		305Vac	Reference derating curve
Input DC Voltage Range	140Vdc		280Vdc	
Input Frequency Range	47Hz	50/60Hz	63Hz	
Max Input Current			5.0A	100Vac, Full load
Max Input Power			500W	100Vac, Full load
Max Inrush Current(120Vac)			100A	Cold start
Max Inrush Current(220Vac)			180A	Cold start
Max Inrush Current(277Vac)			230A	Cold start
Standby Power			0.5W	230Vac/50Hz, Dim-to-off
Power Factor	0.95	0.97		277Vac, Full load
	0.90			100-305Vac, 60%-100% load
THD		8%	10%	277Vac, Full load
			20%	100-305Vac,60%-100% load

SS-420NH-V300A Series LED Driver

Output Characteristics:

Parameter	Min.	Typ.	Max.	Remark
O/P Voltage Range	180V		300V	Power derated @180-200V
Rated O/P Voltage	200V		300V	$P_o = V_o \cdot I_o = 420W$, Full load
Rated O/P Current	1.4A		2.1A	2.1A for 200V, 1.4A for 300V
Adj. O/P Current (AOC) Range	0.525A		2.1A	
No Load Voltage			350V	
Efficiency @120Vac	92.5%	94.5%		Output 300V/1.4A
Efficiency @220Vac	95.0%	97.0%		Output 300V/1.4A
Efficiency @277Vac	95.0%	97.0%		Output 300V/1.4A
O/P Current Tolerance	-5%		+5%	
O/P Current Ripple(PK-AV)		5%	10%	Full load
Start-up Current Overshoot			10%	Full load
Start-up Time			1.0S	120Vac, Full load
			0.75S	220Vac, Full load
Line Regulation	-5%		+5%	Full load
Load Regulation	-5%		+5%	
OTP	90°C	95°C	100°C	Drop current when OTP, and it can be automatically restored after the abnormality is removed.
Short Circuit Protection				Driver will not be damaged, Constant current mode or Hiccup mode

SS-420NH-V300A Series LED Driver

Other Characteristics:

Parameter		Min.	Typ.	Max.	Remark
Aux Power	O/P Voltage	10.8V	12V	13.2V	
	O/P Current			200mA	
0-10V Dimming (Optional)	Dim Vmax	0V		12V	DIM+ source current 110uA.
	Dim Range	10%Iomax		100%Iolet	Dimming prohibits reverse connection
	Rec.Dim Range	0V		10V	
10-0V Dimming (Optional)	Rec.Dim Range	0V		10V	DIM+ Maximum sink current is 40uA Dimming prohibits reverse connection. 5-0V by programming
PWM Dimming (Optional)	PWM High	9.8V		10.2V	DIM+ source current 110uA.
	PWM Low	0V		0.3V	Dimming prohibits reverse connection
	Frequency	1KHz		2KHz	
	PWM Duty	0%		100%	
Resistor Dimming (Optional)	Resistance	0Kohm		100Kohm	DIM+ source current 110uA.
	Dim Range	10%Iomax		100%Iolet	
Dim to Off	Dim off	0.7V	0.8V	0.9V	Auxiliary source 12V unloaded
	Dim on	0.9V	1.0V	1.1V	
Dial adjustment	Current range	0.525A		2.1A	Dialing range can be set via PC software
Default light control	Shutdown Voltage	0V	1.0V	1.2V	Default: 5S action; time/voltage on, off can be set by PC software
	Turn-On Voltage	3.2V	3.5V	5.0V	
Intelligent Emergency Control (Optional, off by default)	Emergency switchover time	3S			AC power failure switching to battery power supply time
	Output Current		8%	10%	Emergency output current can be set via PC software
	Auto-exit time			2H	When the sensor does not detect a signal; configurable
	Access to emergency communications	4Hz duty cycle 25%, high level: 4-10V, low level: 0-0.3V			Duration 30S
	Withdrawal from emergency communications	1Hz duty cycle 25%, high level: 4-10V, low level: 0-0.3V			Duration 2H; configurable

SS-420NH-V300A Series LED Driver

Other Characteristics:

Parameter	Min.	Typ.	Max.	Remark
Timing Curve(Optional)	By programming			Set by program
Lifetime(Tc≤85℃)	≥50,000 hours			80% load,220Vac
MTBF	200,150 hours			220Vac,Full load, Ta=25℃ (MIL-HDBK-217F)
Tc	90℃			
Warranty	5 years			Tc 85℃
Net Weight	950g			
Dimension	275mm*55mm*34mm			L x Wx H

NOTE: All the parameters above are tested Ta 25℃ and LED load, unless specified.

SS-420NH-V300A Series LED Driver

Environmental Requirements

Parameter	Min.	Typ.	Max.	Remark
Operating Temperature(Tcase)	-40°C	25°C	+90°C	
Storage Temperature	-40°C	25°C	+90°C	
Operation Humidity	10%RH		90%RH	
Storage Humidity	5%RH		95%RH	
Altitude	-65m		4000m	

Safety and EMI/EMS Standards

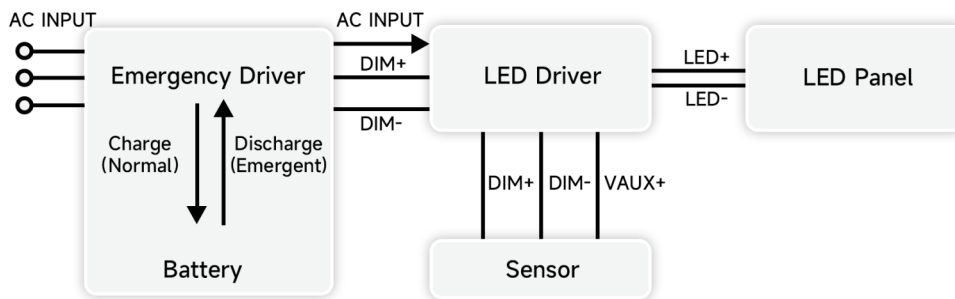
Certification	Standard	Status	Remark
UL	UL8750	✓	
CUL	CAN/CSA C22.2 No.250.13	✓	
ENEC	EN 61347-1 EN 61347-2-13 EN IEC 62384	✓	
RCM	AS/NZS61347.2.13		
CCC	GB/T 19510.1 GB/T 19510.213		
CE	EN 61347-1 EN 61347-2-13 EN 62493	✓	
	EN 301 489-1 EN 301 489-3 EN 300 330 EN 62479/EN 50663/EN 50665/EN 50364		For NFC wireless products

SS-420NH-V300A Series LED Driver

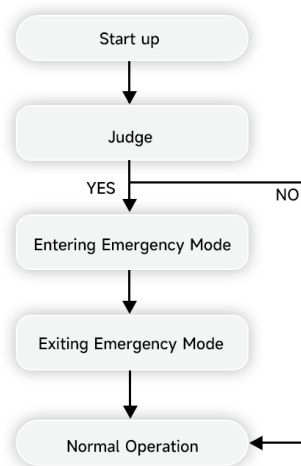
Safety and EMI/EMS Standards

EMI/EMS	Standard	Status	Remark
Conduction Emission	EN IEC 55015	✓	230V
	GB/T 17743		
	FCC Part 15 Subpart B;ANSI C63.4	✓	120V/277V:ClassB
Radiation Emission	EN IEC 55015	✓	230V
	GB/T 17743		
	FCC Part 15 Subpart B;ANSI C63.4	✓	120V/277V:ClassB
Harmonic Current Emissions	EN IEC 61000-3-2	✓	ClassC
	GB 17625.1		ClassC
Surge	IEC/EN61000-4-5	✓	DM: 6kV,CM: 6kV,Criterion B
	ANSI/C82.77-5		DM: 6kV,CM: 6kV,Criterion B
Ring Wave	IEC/EN 61000-4-12	✓	DM: 6kV,CM: 6kV,Criterion B
	ANSI/C82.77-5		DM: 6kV,CM: 6kV,Criterion B

IEC (Intelligent Emergency Control) Description: Connection Diagram



Emergency control logical diagram



Technical Specifications for Emergency Lighting Communication Protocol

- (1) Definition of Communication Levels: Active High Level: 4V - 10V (ON); Active Low Level: 0V - 0.3V (OFF).
- (2) Positive Duty Cycle of Communication Signal: 25%.
- (3) Entering Emergency Mode:
The emergency driver supply will send a signal with 4Hz and a duty cycle of 25% after entering the emergency state. The LED driver supply must continuously detect this signal four times (signal duration of 30 seconds) before entering the emergency mode.
- (4) Exiting Emergency Mode:
Scenario 1: Upon restoration of AC driver, the emergency driver supply sends a signal with 1Hz and a duty cycle of 25%. The LED driver supply must continuously detect this signal four times to exit the emergency mode.
Scenario 2: If it's timeout in the emergency state, the LED driver supply automatically exits the emergency mode after a default period of 2 hours (can be set).

Notes:

In the absence of a detected signal from the sensor (dimming line is a short circuit), the LED driver supply automatically exits the emergency mode after 3 hours. To ensure timely exit from the emergency mode, upon sensor signal detection (releasing the short circuit on the dimming line), the emergency driver supply continues to send the 1Hz exit signal for 2 hours after detecting the restoration of AC driver.

The LED driver supply is equipped with an emergency function switch that can be enabled through our proprietary PC software (default setting is "off"). For obtaining relevant emergency certifications, compatibility with the emergency driver supply system during certification is required.

When the emergency function is used, and the system is operating under no-load conditions or with the "Dim-off" function enabled, the system should delay switching to battery for 15 seconds after AC power loss.

SS-420NH-V300A Series LED Driver

Safety Test Items:

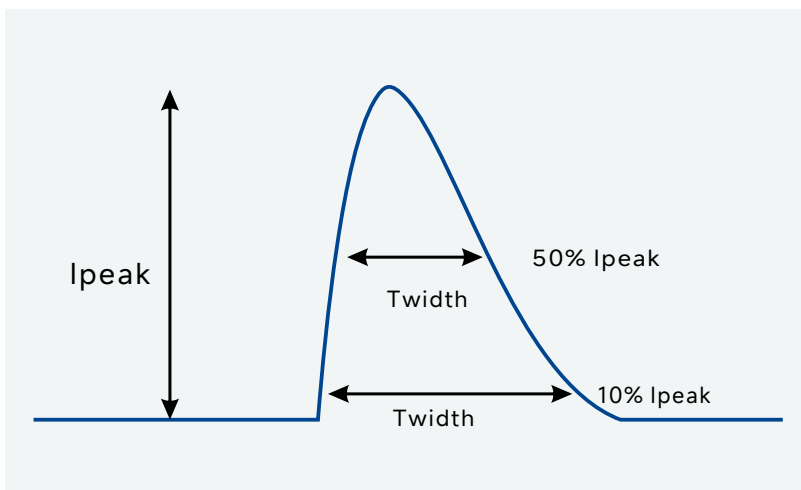
Safety Test Items	Technical Indicators			Remark
Insulation Requirements	UL Insulation Requirements	ENEC Insulation Requirements	CCC Insulation Requirements	
Input-Case	2U+1000Vac	2U+1000Vac	/	Basic insulation
Input-Dim	2U+1000Vac	4U+2000Vac	/	Reinforced insulation
Dim-Case	500Vac	500Vac	/	Basic insulation
Insulation Resistance	$\geq 10\text{M}\Omega$			Input-Dim, Test voltage: 500Vdc
Ground Resistance	$\leq 0.1\Omega$			25A/1min
Leakage Current	$\leq 0.75\text{mA}$			277Vac

NOTE:

1. SOSEN warrants the LED Driver itself complies with EMC standard. However, LED Driver's EMC should be re-checked when integrated into lighting systems due to unexpected interference of components.
2. Please short (ACL and ACN), (V+ and V-), (Dim+ and Dim - and Vaux+ and Vaux-)when Hi-pot test.

Performance Curves:

Input Inrush Current

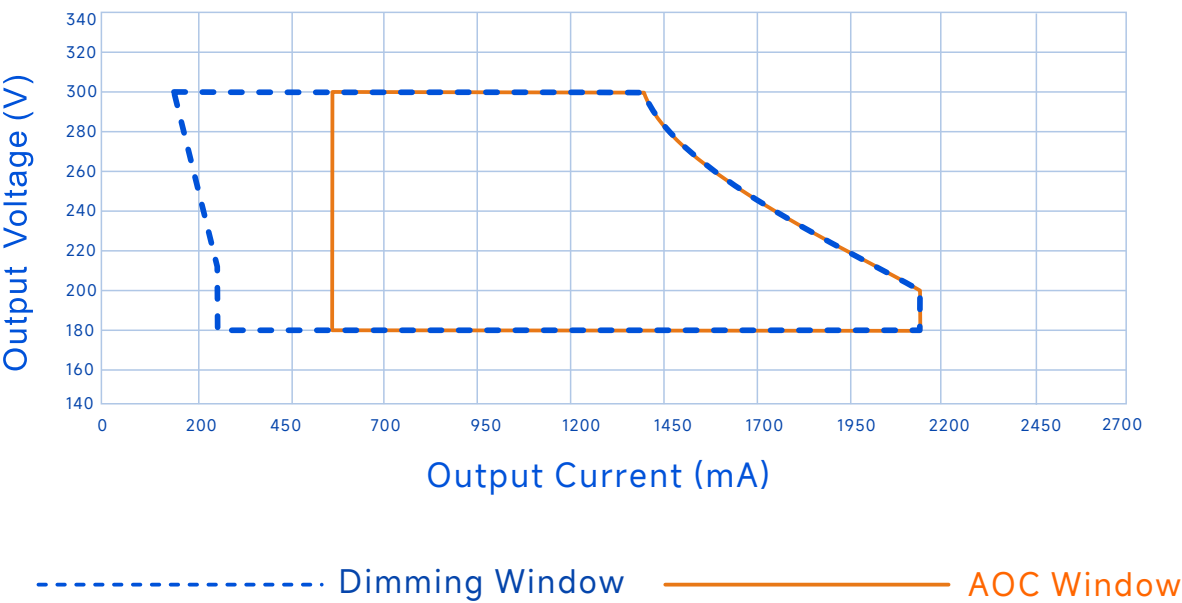


V_{in}	I_{peak}	$T(@10\% \text{ of } I_{\text{peak}})$	$T(@50\% \text{ of } I_{\text{peak}})$
120Vac	100A	700 μs	300 μs
220Vac	180A	820 μs	300 μs
277Vac	230A	970 μs	300 μs

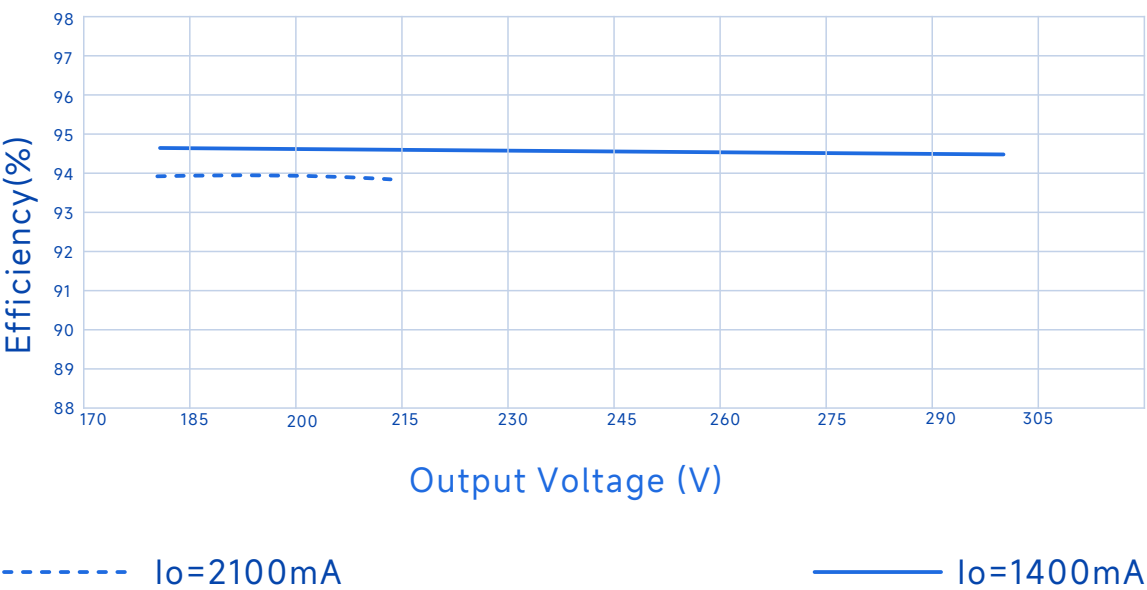
SS-420NH-V300A Series LED Driver

Performance Curves:

Output Voltage Vs. Output Current(Dim/AOC Window)



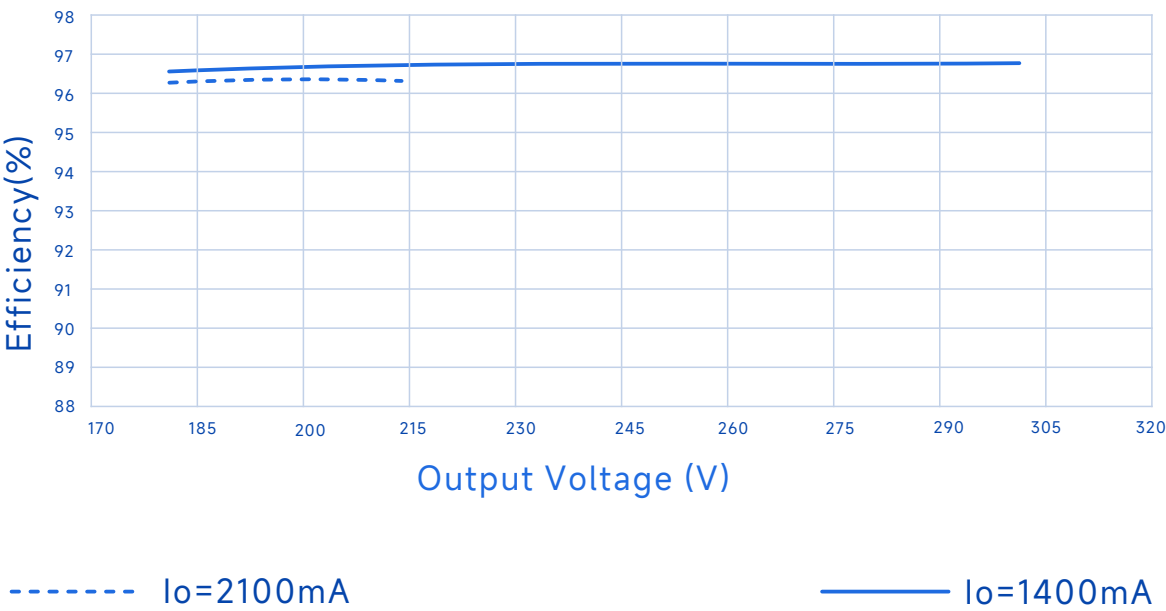
Efficiency Vs. Output Voltage (Vin=120Vac)



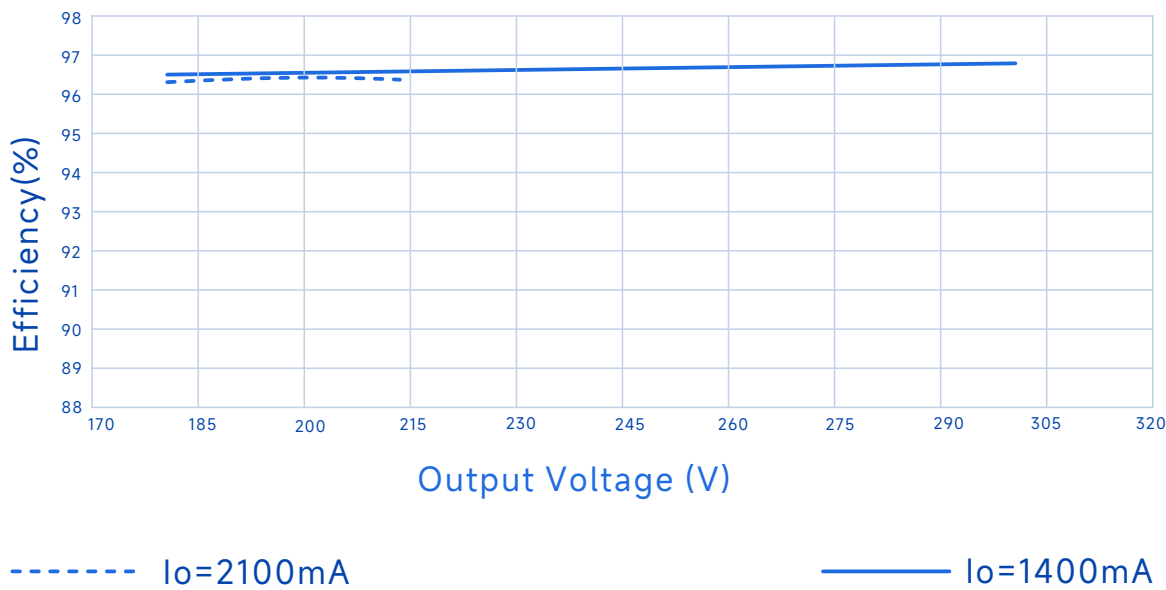
SS-420NH-V300A Series LED Driver

Performance Curves:

Efficiency Vs. Output Voltage (Vin=220Vac)



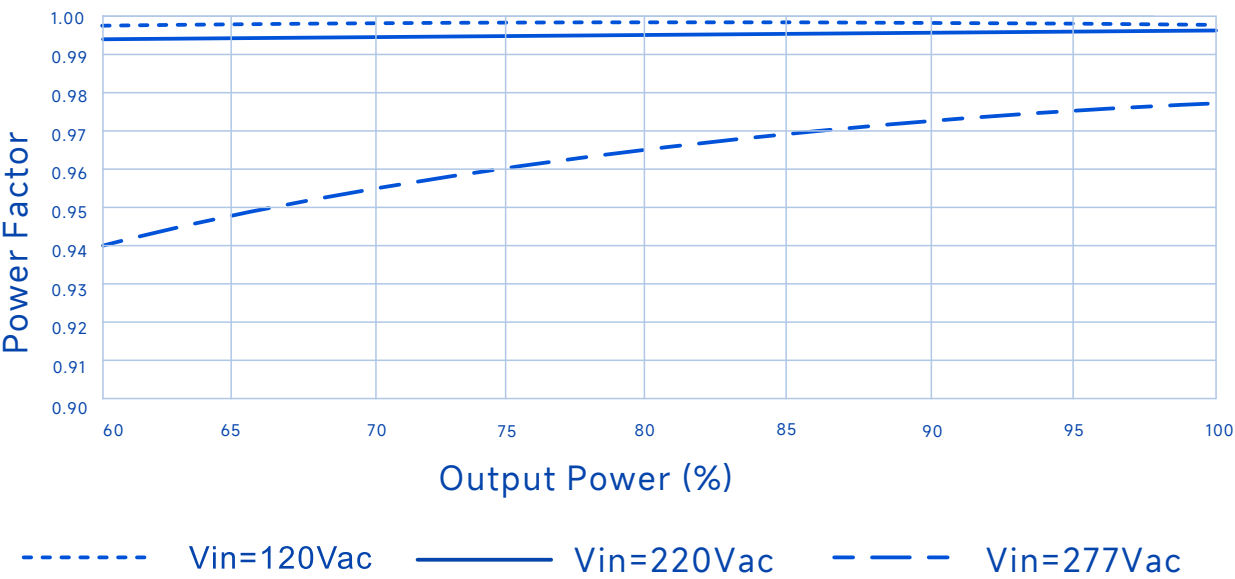
Efficiency Vs. Output Voltage (Vin=277Vac)



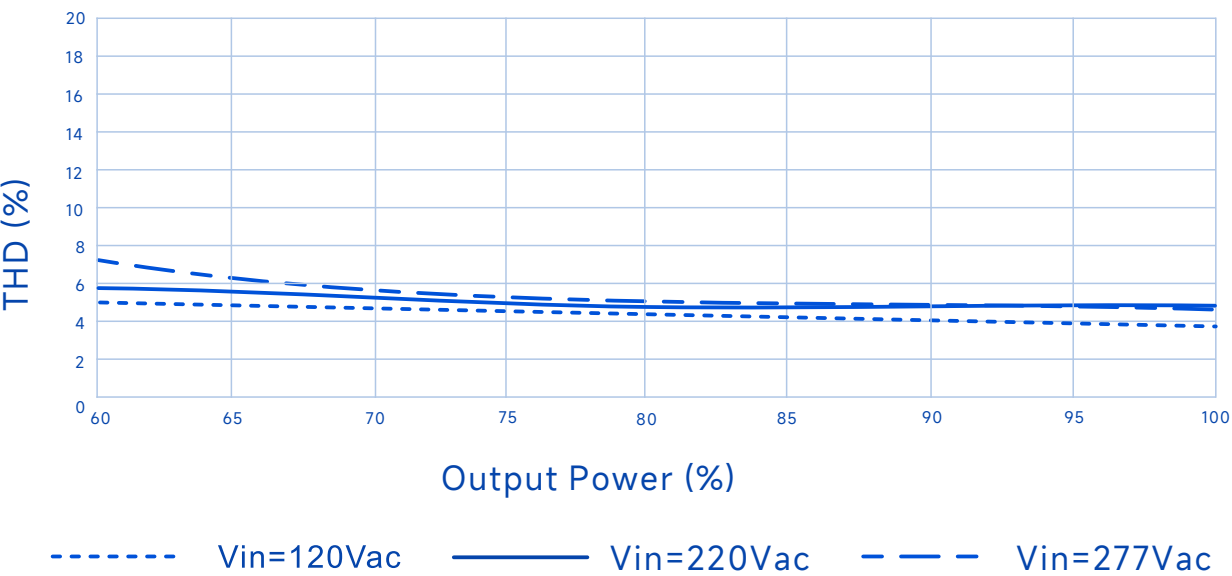
SS-420NH-V300A Series LED Driver

Performance Curves:

Power Factor Vs. Output Power



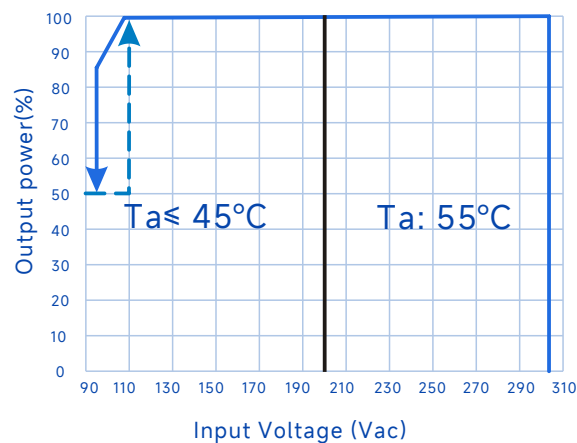
THD Vs. Output Power



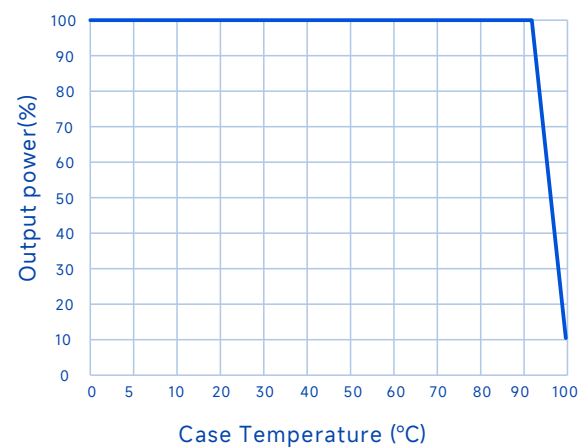
SS-420NH-V300A Series LED Driver

Performance Curves:

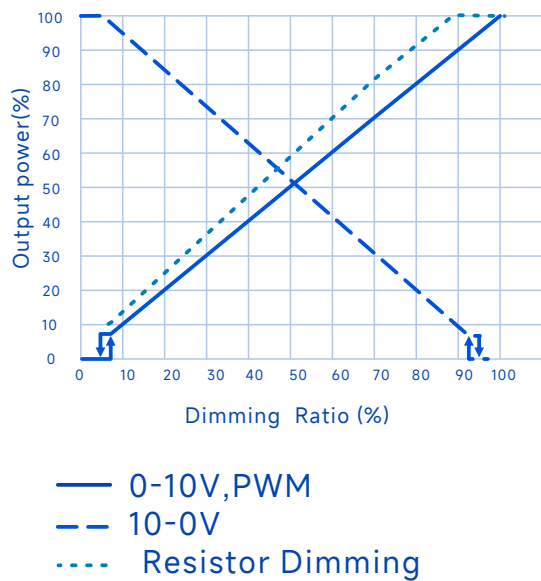
Output Power Vs. Input Voltage



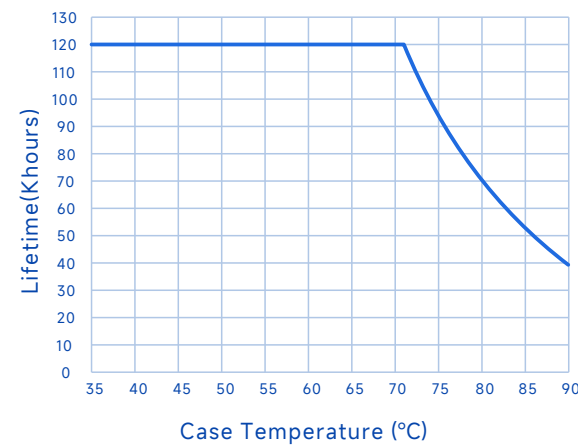
Output Power Vs. Case Temperature



Output Power Vs. Dimming



Lifetime Vs. Case Temperature



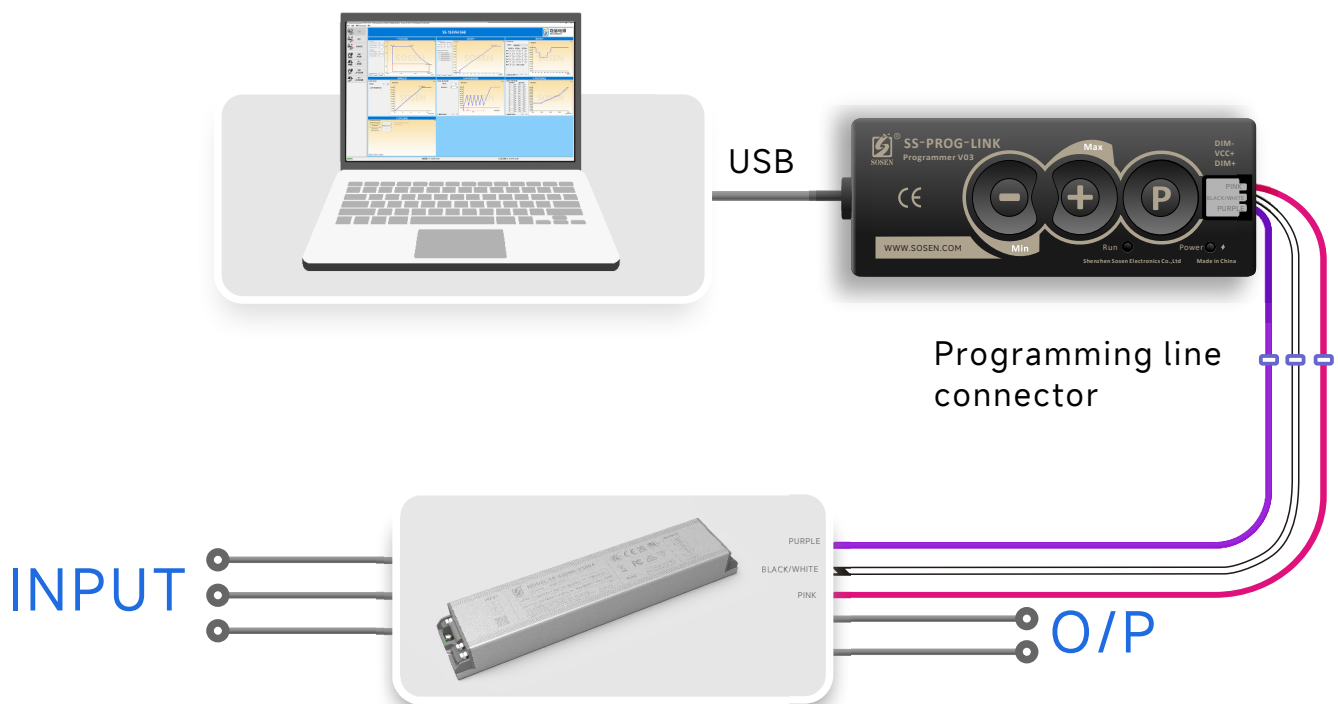
SS-420NH-V300A Series LED Driver

Programming connection diagram

Legacy Timer: Driver's O/P follows the pre-programmed timing curve after turn-on.

Auto-Adjust by Percentage: Driver's O/P will be adjusted by automatically changed dimming curve by the period percentage based on the latest 5 dimming curve.

Auto-Adjust by Mid-point: Driver's O/P will be adjusted by automatically changed dimming curve by mid-point based on the latest 5 dimming curve.



1. During the programming process, all programming functions can be realized without powering on the driver.
2. All programming functions can be realized without powering off the drive that is currently in use.
3. It can be disconnected from the PC and offline programming can be implemented.

Note:

For details, please refer to the Sosen SS-PROG-LINK Programmer Manual.

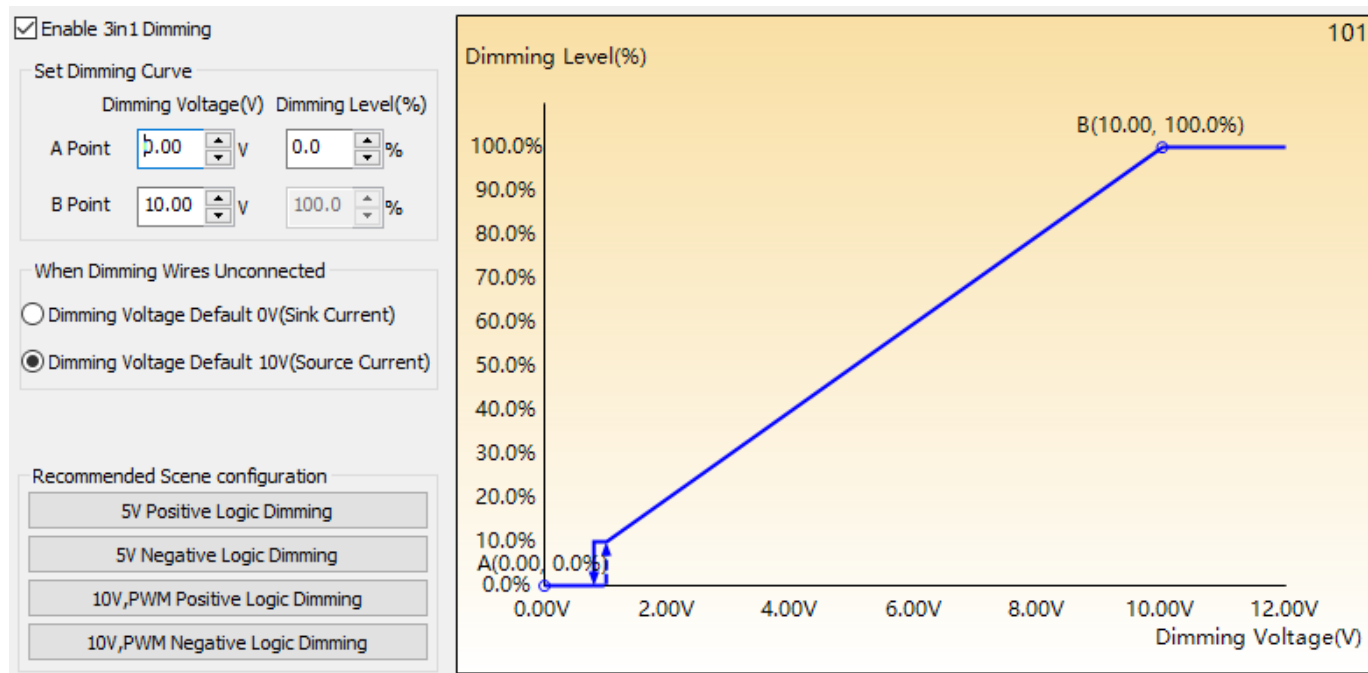
SS-420NH-V300A Series LED Driver

Parameter			Remark
Default setting	Positive logic dimming (0-10V)	Dimming voltage default 10V (source current)	
	Negative logic dimming (10-0V)	Dimming voltage default 0V (sink current)	
Dimming optional function	Positive logic dimming (0-10V)	Dimming voltage default 0V (sink current) Resistance dimming not available	When the dimming wire is not connected, the LED driver output is in the DIMOFF state
			For parallel dimming applications with multiple LED drivers, it is recommended to use the sink current mode (to be noted in the order)

Note:

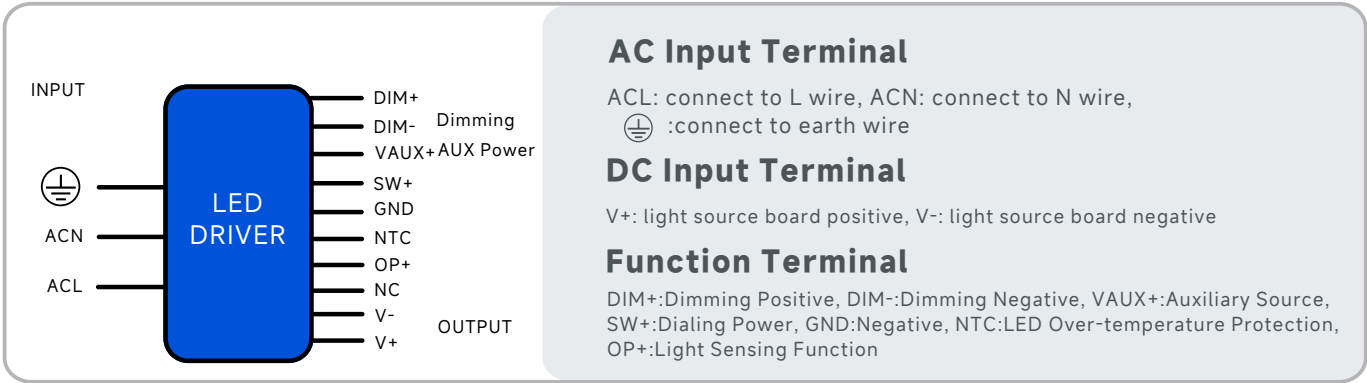
Select "Dimming voltage defaults to 10V (source current)" / "Dimming voltage defaults to 0V (sink current)", which needs to be set according to the dimmer used by the end user.

Settings Interface



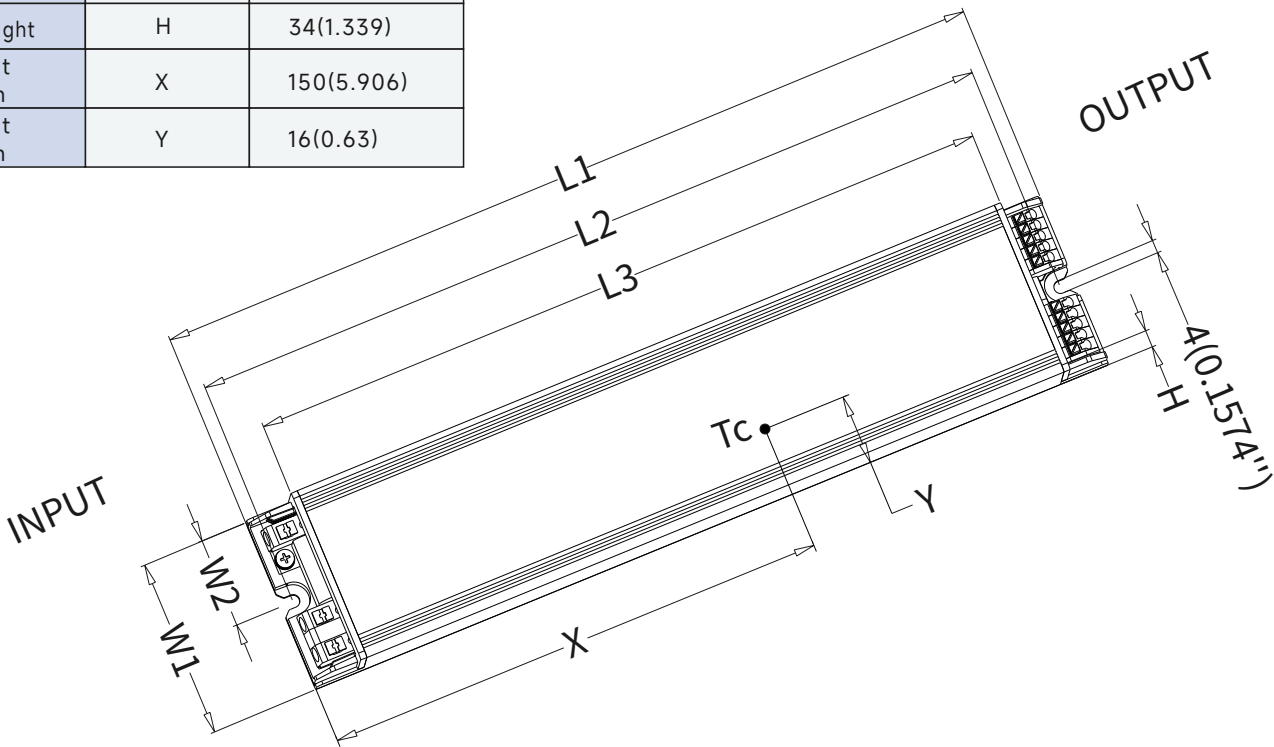
SS-420NH-V300A Series LED Driver

Mechanical Characteristics



Name Description	Standard Code	mm(In.)
Overall Length	L1	275(10.83)
Mounting Hole Length	L2	267(10.51)
Case Length	L3	248(9.764)
Mounting Hole Width	W1	55(2.165)
Case Width	W2	27.5(1.083)
Case Height	H	34(1.339)
TC Point Position	X	150(5.906)
TC Point Position	Y	16(0.63)

Note
1,Please follow the "LED Driver User Manual" obtained
from SOSEN's official website for assembly.



SS-420NH-V300A Series LED Driver



Assembly Tips

1. Safety space between aluminum base and LED coppers >5mm.
2. Safety space/coppers between LED+ and LED- >1.8mm.
3. Minimize the copper area on the aluminum PCB to reduce parasitic capacitance and leakage current.
4. It is recommended to design LED beads in parallel first and then in series.
5. The insulation level of LED light panels should meet the reliability design requirements.
6. For other precautions, please refer to the "LED Driver User Manual".
7. SOSEN reserves the right of final interpretation of the above parameters.

Package

- Outside carton dimension: L×W×H =325mm×315mm×165mm;
- 20PCS/Carton;
- Net weight/Piece: 0.95kg;Gross weight/Carton: 19kg;
- Please refer to the product name, model number, manufacturer identification, QC PASS, manufacturing date on the package.

Transportation

Packaging is designed suitable for transportation by trucks, vessels and flights. The products should be avoided direct sunlight and rain, loaded/unloaded with caution.

Storage

The product storage meets the standard of the GB 3873—83.
Products should be rechecked if stored for over 1 year before assembly.

RoHS

Products comply with RoHS Directive (2011/65/EU) and amendment 2015/863/EU.



Revision History

Version	Description of Update	Updated Date	Remark
V00	Original Release	2025/09/26	